3.5 MIRE POND FILL STUDY SITE

3.5.1 Qualitative Site Description

Physical description. Most of this site (Figure 10) is composed of historically altered upland areas (nonwetlands) dominated by pines and shrubs. The total area of the site is about 7 ha. The only wetlands associated with this site are a fringe along Mire Pond and two small areas of isolated wetlands near State Route 2126. About one-third of the site has been recently altered through clearing of the understory and filling of wetland fringe up to Mire Pond. This part of the site lies at the southwestern edge adjacent to Mire Pond Scrub/Shrub System Study Site.

Definitions. The WIA consists of the site as outlined by the EPA and as described in the section above. The basin for

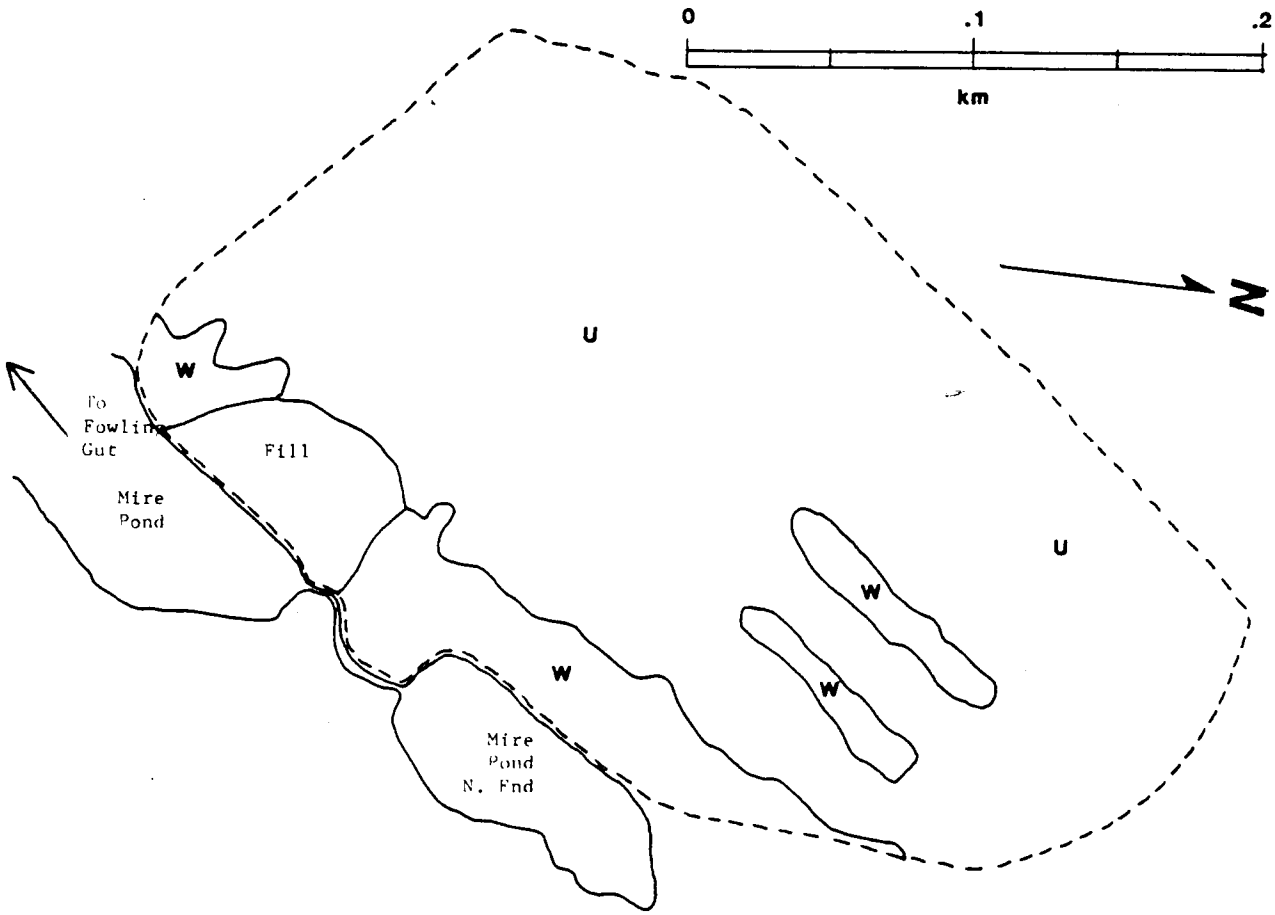

Figure 10. Map of Mire Pond Fill Site WIA showing wetland (w) and upland (u) areas. Major outlet is indicated by arrow that depicts the direction of water movement from the site.

this site includes Mire Pond and Fowling Gut up to the point where it empties into Chincoteague Bay. The sub-watershed for the site consists of the upland pine, emergent fringe marsh,and shrub-dominated areas which immediately surround Mire Pond and Fowling Gut to the exit into Chincoteague Bay.

Qualitative vegetation description. The wetland areas which lie along Mire Pond are dominated by Spartina patens, Distichlis spicata, and some S. alterniflora. The higher parts of this wetland consist of a shrub zone consisting of Myrica, Iva, and some Baccharis. Sections of the wetland lying nearest the study site which have been altered by limited filling are dominated by Phragmites. The upland areas are dominated by pine, small oaks, shrubs such as Myrica and sumac (Rhus sp.), and a variety of less common shrubs.

Wetland classification. The wetlands adjacent to Mire Pond are estuarine emergent and estuarine scrub/shrub, while the two isolated interior wetlands are palustrine scrub/shrub.

Wildlife use. The upland areas appear to be used by passerine birds and a variety of small mammals. The estuarine wetlands and Mire Pond are used seasonally by waterfowl and shorebirds. Mire Pond is probably an important nursery area for fishes because of its connection to the estuary through Fowling Gut. The small palustrine wetlands are probably utilized by small mammals and passerine birds (we made no direct observations in these areas).

Hydrologic functions. During wet periods this site drains from the upland areas down into Mire Pond and through Fowling Gut to Chincoteague Bay. This drainage is in the form of sheet flow and is probably very limited. During dry periods the wetland fringe exchanges limited quantities of water with Mire Pond by tidal action. On the uplands most drainage occurs below the surface and vertically within the site. For these reasons, the site probably has moderate potential for ground-water recharge and nutrient retention, but relatively moderate to low value for flood storage.

Substrate, water salinity. Soils in the upland areas are largely sandy and sandy loams. Soils underlying the wetlands and Mire Pond are sand with a thin layer of surface organic matter. Salinities in Mire Pond probably range seasonally from 10 to 25 ppt.

3.5.2 Adamus and Stockwell Evaluations: Mire Pond Fill Site

Summary Sheet D

This form is the appropriate place for recording the ratings that result from use of the interpretation procedures and keys in Sections 2.1.2, and 2.2.2. As each analysis is completed, enter its rating (high,moderate, or low; or A, B, or C) in the relevant box until all boxes for functions of interest are filled.

Begin by labeling the context of the analysis (pre- or post- construction, with or without mitigation, name of basin and WIA). Then enter the data, using the numbered footnotes to help locate the associated analyses. For the evaluation of each function's Effectiveness, enter whichever rating is higher--That for the basin or that for the WIA. The evaluation of the impact vector is optional.

BASIN _____ WIA _____ PROJECT _____

EVALUATION TIME FRAME (PRE/POST) _____ MITIGATION PLAN # _____

FUNCTION	EFFECTIVENESS[1]	OPPORTUNITY[1]	FUNCTIONAL RATING[1]	SIGNIFICANCE[3]	FUNCTIONAL SIGNIFICANCE[4]
GROUND WATER RECHARGE[5]	low	moderate	low	moderate	low
GROUND WATER DISCHARGE[6]	low		low	high	low
FLOOD STORAGE[7]	high	high	high	moderate	high
SHORELINE ANCHORING[8]	moderate	low	moderate	moderate	moderate
SEDIMENT TRAPPING[9]	moderate	high	high	high	very high
NUTRIENT RETENTION					
LONG-TERM[10]	moderate	high	high	high	very high
SEASONAL[11]	moderate	high	high		very high
FOOD CHAIN SUPPORT					
DOWNSTREAM[12]	moderate		moderate	moderate	moderate
IN-BASIN[13]	moderate		moderate		moderate
FISHERY HABITAT					
WARMWATER[14]	low		low		low
COLDWATER[14]				moderate	
COLDW.RIVERINE[14]					
ANADROMOUS RIV. SPECIES[15] Bl.Fish,Hd. Cl.,Win.Fl.*	moderate		moderate		moderate
WILDLIFE HABITAT					
GENERAL DIVERSITY[16]	moderate		moderate		moderate
WATERFOWL GP.[17] 1	low summer	low winter	low	moderate	low
WATERFOWL GP.[17] 2	low summer	low winter	low		low
SPECIES[18] Black Duck		low winter			low
SPECIES[18] Common Egret	high		high		high
SPECIES[18]					
ACTIVE RECREATION[19]					
SWIMMING	low		low	moderate	low
BOAT LAUNCHING	low		low		low
POWER BOATING	low		low		low
CANOEING	moderate		moderate		moderate
SAILING	low		low		low
PASSIVE RECREATION AND HERITAGE[20]				moderate	moderate
IMPACT VECTOR RATING[21]					

FOOTNOTES

These entries will be based on analyses in the following parts of Volume II (numbers correspond to footnotes above):

[1]-Forms A, A1 (p. 6, 51); [2]-Section 2.1.2.2. (p. 97); [3]-Forms B, B1 (p. 38, 54); [4]-Section 2.1.2.2. (p. 97); [5]-Interpretation key in Section 2.1.2.1. p. 57; [6]-p. 59; [7]-p. 60; [8]-p. 62; [9]-p. 64; [10]-p. 67; [11]-p. 67; [12]-p. 69; [13]-p. 71; [14]-p. 73; [15]-p. 75; [16]-p. 79; [17]-p. 80; [18]-p. 84; [19]-p. 91; [20]-p. 92; [21]-p. 93.

* Blue Fish, Hard Clam, Winter Flounder

Mire Pond Fill Site

Response Sheet A1

THRESHOLD ANALYSIS: FUNCTIONAL OPPORTUNITY AND EFFECTIVENESS

This sheet is the appropriate place for recording the responses to corresponding questions in Form A. A "yes" (Y) or "no" (N) response must be circled for all parts of each question, even when the response seems obvious. This response sheet has two major columns--"WIA" and "BASIN", and within each of these, three subcolumns entitled "$\bar{x}$", "W", and "D", which address, when relevent, the seasonal changes in some of the predictors, as follows:

> $\bar{x}$ column responses are those addressing either (a) the average annual condition, or (b) the condition intermediate between the wettest and driest annual conditions (e.g., late June in most Prairie pothole wetlands), or (c) the condition of maximum annual standing crop of wetland plants, or (d) if tidal, the average daily mid-tide condition.
>
> W column responses are those addressing what the area would look like (a) during the wettest time of an average year, or (b) if the area is tidal, what it would look like during an average daily high tide (flooded) condition.
>
> D column responses are those addressing what the area would look like during either the driest time of the year (questions pertaining to hydrology) or if the question pertains to vegetation, then during the dormant time of the year. If the area is tidal, "D" refers to its daily low tide (exposed) condition.

For example, question 2.1.1 should first be asked and answered in the context of the WIA's (wetland impact area's) average condition, then in terms of its wettest condition, then the basin's average condition, and finally the basin's wettest condition. This should then be repeated for question 2.1.2. Because no Y/N choice is given in either "D" column, the area's dry or dormant condition need not be evaluated for this question. Similarly, some questions will require responses only for the WIA or basin, but not both.

Q. #	WIA $\bar{x}$	WIA W	WIA D	BASIN $\bar{x}$	BASIN W	BASIN D	
Office-type Data							
1.1	Y N	Y N	Y N	Y N	Y N	Y N	
1.2	Y N	Y N	Y N	Y N	Y N	Y N	
1.3	Y N	Y N	Y N	Y N	Y N	Y N	
1.3.1	Y N	Y N	Y N	Y N	Y N	Y N	

Mire Pond Fill Site

Q. #	WIA I	WIA W	WIA D	BASIN I	BASIN W	BASIN D			
2.1.1	Y N	Y N		Y N	Y N		See Comment form		
2.1.2	Y N	Y N		Y N	Y N				
2.2.1	Y N	Y N		Y N	Y N				
2.2.2	Y N	Y N		Y N	Y N				
3.1					Y N		See	Comment	form
3.2					Y N				
4.1	Y N								
4.2	Y N								
5.1					Y N		See	Comment	form
5.2					Y N				
6.1		Y N							
6.2		Y N							
7.1				Y N			See Comment form		
7.2				Y N					
8.1					Y N		See Comment form		
8.2					Y N				
9.1				Y N			See	comment	form
9.2				Y N					
10.1	Y N								
10.2	Y N	N/A							
10.3	Y N								
10.4	Y N								
11.1	Y N								
11.2	Y N								
12.1		Y N	N/A						
12.2		Y N							
13.1				Y N	N/A				
13.2				Y N					
14.	Y N			Y N					
15.1	Y N								
15.2	Y N								
15.3	Y N								
15.4	Y N								
15.5	Y N								
15.6	Y N								
15.7	Y N								
16.	Y N								
17.1	Y N								
17.2	Y N								
18.	Y N								
19.	Y N								
20.				Y N					
21.1	Y N						See	Comment	form
21.2	Y N								
21.3	Y N								
21.4	Y N								
21.5	Y N								
21.6	Y N								
Field-type Data									
22.1	Y N	Y N		Y N	Y N				
22.1.1	Y N	Y N		Y N	Y N				
22.1.2	Y N	Y N		Y N	Y N				
22.1.3	Y N	Y N		Y N	Y N				
22.1.4	Y N	Y N		Y N	Y N				
22.1.5	Y N	Y N		Y N	Y N				
22.2	Y N	Y N		Y N	Y N				
22.2.1	Y N	Y N		Y N	Y N				

Mire Pond Fill Site

Q. #	MIA R	MIA W	MIA D	BASIN R	BASIN W	BASIN D			
22.2.2	Y	Y		Y	Y				
22.2.3	Y	Y		Y	Y				
22.2.4	Y	Y		Y	Y				
22.2.5	Y	Y		Y	Y				
22.3	Y	Y		Y	Y				
22.3.1	Y	Y		Y	Y				
22.3.2	Y	Y		Y	Y				
22.3.3	Y	Y		Y	Y				
22.3.4	Y	Y		Y	Y				
22.4	N	N		Y	Y				
22.4.1	N	N		Y	Y				
22.4.2	Y	Y		Y	Y				
22.5	Y	Y		Y	Y				
22.6	Y	Y		N	N				
23.1	Y			Y			} See	Comment	form
23.2	Y			Y					
23.3	N			Y					
23.4	Y			N					
23.5	Y			Y					
23.6	Y			Y					
23.7	Y			Y					
23.8	Y			Y					
23.9	Y			Y					
24.1	Y	Y	Y				} See	Comment	form
24.2	Y	Y	Y						
24.3	N	N	Y						
24.4	Y	Y	N						
24.5	Y	Y	Y						
24.6	Y	Y	Y						
25.1	N								
25.2	Y								
25.3	Y								
26.1			Y			Y			
26.2			Y			Y			
26.3			Y			Y			
26.4			Y			Y			
26.5			Y			Y			
26.6			Y			Y			
26.7			Y			Y			
26.8			Y			Y			
26.9			Y			N			
26.10			Y			Y			
26.11			N			Y			
27.1		Y N	N/A		Y N	N/A			
27.2		Y N			Y N				
28.1				Y					
28.2				Y					
29.			N/A	Y N					
30.1	N								
30.2	Y								
31.1		Y N	N/A						
31.2		Y N							
32.1	N	N	N	N	N	N			
32.2	Y	Y	Y	Y	Y	Y			
32.3	Y	Y	Y	Y	Y	Y			
32.4	Y	Y	Y	Y	Y	Y			
32.5	Y	Y	Y	Y	Y	Y			
32.6	Y	Y	Y	Y	Y	Y			
32.7	Y	Y	Y	Y	Y	Y			
32.8	Y	Y	Y	Y	N	Y			

Mire Pond Fill Site

O. #	WIA R	WIA W	WIA D	BASIN R	BASIN W	BASIN D			
33.1	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)			
33.2	(Y) N	(Y) N	(Y) N	(Y) N	(Y) N	(Y) N			
33.3	Y (N)	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N			
33.4	Y (N)	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N			
33.5	Y (N)	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N			
33.6	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)			
33.7	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)			
33.8	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)			
34.1	(Y) N	(Y) N	(Y) N	Y (N)	Y (N)	Y (N)			
34.2	Y (N)	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N			
34.3	Y (N)	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N			
34.4	Y (N)	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N			
34.5	Y (N)	Y (N)	Y (N)	(Y) N	(Y) N	(Y) N			
34.6	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)			
34.7	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)			
34.8	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)	Y (N)			
35.1	(Y) N	(Y) N							
35.2.1				Y (N)					
35.2.2				Y (N)					
35.2.3				Y (N)					
36.	(Y) N			(Y) N			see comment form		
37.1		Y (N)							
37.2			Y (N)						
38.1				(Y) N	(Y) N	(Y) N	See comment form		
38.2	Y N	Y N	N/A						
39.1	Y N	N/A							
39.2	Y N	N/A							
39.3	Y (N)								
39.4	Y (N)								
39.5	(Y) N						see comment form		
39.6				(Y) N			see comment form		
40.	Y N	Y N	N/A						
41.1				(Y) N	(Y) N	(Y) N			
41.1.1				(Y) N	(Y) N	(Y) N			
41.1.2				Y (N)	Y (N)	Y (N)			
41.1.3				Y (N)	Y (N)	Y (N)			
41.2				Y (N)	Y (N)	Y (N)			
41.2.1				Y (N)	Y (N)	Y (N)			
41.2.2				Y (N)	Y (N)	Y (N)			
41.2.3				Y (N)	Y (N)	Y (N)			
41.3				Y (N)	Y (N)	Y (N)			
41.3.1				Y (N)	Y (N)	Y (N)			
41.3.2				Y (N)	Y (N)	Y (N)			
41.3.3				Y (N)	Y (N)	Y (N)			
41.4				Y (N)	Y (N)	Y (N)			
42.1	(Y) N	(Y) N	(Y) N						
42.2	Y (N)	Y (N)	Y (N)						
42.3	Y (N)	Y (N)	Y (N)						
43.	(Y) N	(Y) N	(Y) N	Y (N)	Y (N)				
44.1				Y (N)	Y (N)				
44.2				(Y) N	(Y) N				
45.1	Y (N)								
45.2	(Y) N								
46.1	Y (N)								
46.2	Y N	N/A							
46.3	(Y) N								
46.4	Y (N)								
47.1	Y (N)								
47.2	Y (N)								
48.1	Y (N)	Y (N)							
48.2	Y (N)	Y (N)							

Mire Pond Fill Site

Q. #	WIA I	WIA W	WIA D	BASIN I	BASIN W	BASIN D	
49.1				Y (N)			
49.2				Y (N)			
50.	(Y) N	(Y) N	(Y) N				
51.		(Y) N					
Detailed Data							
52.1.1	Y N } N/A						See comment form
52.1.2	Y N }						
52.2.1	(Y) N						
52.2.2	Y (N)						
53.1	Y N N/A						
53.2	Y N						
54.1	Y N N/A						
54.2	Y N						
55.	Y (N)						
56.					Y N	N/A	See comment form
57.1	(Y) N						
57.2	Y (N)						
57.3	Y (N)						
57.4	Y (N)						
58.1	Y N						See comment form
58.2	Y N N/A						
58.3	Y N						
58.4	Y N						
59.1				Y N			See Comment form
59.2		N/A		Y N			
59.3				Y N			
60.1						Y N	See Comment form
60.2		N/A		Y N			
60.3				Y N			
61.1	Y N						See Comment form
61.2	Y N N/A						
62.	Y N N/A						
63.1						Y N	
63.2				N/A		Y N	
64.				N/A		Y N	See Comment form
65.	(Y) N						
66.1		Y N				Y N	See Comment form
66.2		Y N	N/A			Y N	
67.1		Y N				Y N	See Comment form
67.2		Y N	N/A			Y N	
68.1	Y N					Y N	See Comment form
68.2	Y N N/A					Y N	
Derived Responses							
69.1	Y N						
69.2	Y N						
70.1	Y N						
70.2	Y N						
71.1	Y N						
71.2	Y N						
72.1	Y N						
72.2	Y N						
73.1	Y N						
73.2	Y N						
74.1	Y N						
74.2	Y N						
75.1	Y N						
75.2	Y N						

After responses to all possible questions (Form A) have been recorded above, turn to Form B (page 38). You will(as an option) return to this sheet (in Section 2.1.2) to interpret the above responses.

Mire Pond Fill Site

Response Sheet B1

THRESHOLD ANALYSIS: SIGNIFICANCE

This sheet is the appropriate place for recording the responses to the corresponding questions in Form B. Circle Y (yes) or N (no), being careful to note that the order of Y and N below frequently reverses.

General

1.1 N Y
1.2 N Y
1.3 N Y
1.4 N Y
1.5 N Y
1.6 N Y
2. Y N

} See Comment form

Recharge

3. Y N
4. Y N
5. Y N
6. Y N
7. Y N
8. Y N
9. Y N
10. N Y

See comment form

Discharge

11. Y N
12. Y N
13. Y N
14. Y N
15. N Y

} See comment form

Flood Storage

16. Y N
17. Y N
18. Y N
19. Y N
20. Y N
21. Y N
22. N Y

See comment form

see comment form

Shoreline Anchoring

23. Y N
24. Y N
25. Y N
26. Y N
27. Y N
28. Y N
29. N Y

Sediment Trapping

30. Y N
31. Y N
32. Y N
33. Y N
34. Y N
35. Y N
36. N Y

Nutrient Retention

37. Y N
38. Y N
39. Y N
40. Y N
41. Y N
42. N Y

Fish Food Chain/ Habitat

43. Y N
44. Y N
45. Y N
46. Y N
47. Y N
48. Y N
49. Y N
50. Y N
51. Y N
52. Y N
53. N Y

} See comment form

Wildlife Habitat

54. Y N
55. Y N
56. Y N
57. Y N
58. Y N
59. Y N
60. N Y

Active Recreation

61. Y N
62. Y N
63. Y N
64. Y N
65. Y N
66. Y N
67. N Y

See comment form

Passive

68. Y N
69. Y N
70. Y N
71. Y N
72. Y N
73. Y N
74. Y N
75. Y N
76. Y N
77. Y N
78. N Y

See comment form

Form "A" Comments (Mire Pond Fill Site)

2.2	Basin's outlet is constricted where the Fowling Gut Pond enters the dredged portion of Fowling Gut (and overly restricted culvert at county road 2112 and 2114)
3.1-3.2	Sinuous because "basin" includes all of Fowling Gut below Mire Pond
5.2	See site map (Figure 10) and definitions for this site
7	Predictor not used
8	Sub-watershed = upland surrounding Mire Pond and Fowling Gut to Chincoteague Bay
9	Predictor not used
21	Refers strictly to the wetlands in WIA (see Methods section)
23.1-23.9	Sediments are sand with shallow layer of porous organic
24	This is an estimate because we lack salinity measurements during droughts
36	No measurements; we have estimated
38	Culvert at county road 2112 and 2114 causes flow blockage at outlet
39.5	Culverts at roads 2112 and 2114 probably restrict access by estuarine fish to some extent
39.6	Significant contribution of freshwater comes from storm water runoff from developed areas (through Fowling Gut) to our basin
52.1	No measurements
52.2	Refers to only wetland areas; Spartina present
56	No data

58	No data	61	No data
59	No data	64	Estimate. No data
60	No data	66	Tidal

67	No data
68	No data

Form "B" Comments (Mire Pond Fill Site, Mire Pond Scrub-Shrub-Estuarine Portion and Mire Pond Scrub-Shrub-Palustrine Portion)

1	See comments for Chincoteague Ridge/Swale and High School East Sites (there probably will be development in upland areas of the site)
2	See comments for Ridge/Swales and High School East sites.
9	Palustrine portion of Mire Pond Scrub/Shrub site is viewed as a significant recharge area
12	Groundwater discharge from Mire Pond fill and Mire Pond Scrub-Shrub sites probably influences salinity in Fowling Gut and therefore affects sport and commercial fishes in Fowling Gut
13	Discharge from Mire Pond fill and Mire Pond Scrub-Shrub sites probably dilutes septic tank outflow
19	Flooding enhances access by fishes and waterfowl
44	Mire Pond fill and estuarine portion of Mire Pond Scrub-Shrub sites contain brackish marshes with estuarine connection--a prime nursery area
45	Mire Pond fill and estuarine portion of Mire Pond Scrub-Shrub have anadromous fish--coastal mid-Atlantic
67	Mire Pond fill and estuarine portion of Mire Pond Scrub-Shrub have impacts upon Fowling Gut which affect active recreation, i.e., fishing, crabbing
21	Estuarine Portion of Mire Pond Scrub-Shrub site flooded daily, not as valuable for flood storage and desynchronization
71	In palustrine portion of Mire Pond Scrub-Shrub sites freshwater swale wetlands considered relatively rare and of scientific value